

REMARKS

By this amendment, claims 16-19, 23, 25-28, 32, 42, 45, 54-56 and 58 have been amended and claims 20-22, 24, 29-31, 33, 43, 44, 46, 47, 52, 53, 57 and 59 have been canceled. Support for the changes to independent claims 16 and 25 can be found, *inter alia*, in Example 1 at pages 20-23 of the specification. Claims 17-19, 23, 26-28, 32, 42, 45, 56 and 58 have been amended for consistency with the foregoing changes to independent claims 16 and 25. Support for the changes to claims 54 and 55 can be found, *inter alia*, from page 11, line 24 through page 12, line 12 of the specification. Claims 1-15, 34-41, 48-51 and 60-63 were canceled previously. Claims 66-70 stand withdrawn from consideration. Claims 16-19, 23, 25-28, 32, 42, 45, 54-56, 58, 64, 65, 71 and 72 are presented for further examination.

The rejection of claims 16-22, 25-31, 54, 55, 64, 65, 71 and 72 under 35 U.S.C. § 103(a) over Ohmi, US 2002/0014666 in view of Wolf, Silicon Processing, Vol. 1 (Wolf I), and further in view of Mintz, US 5,618,282 is respectfully traversed.

The present invention relates to a process for forming an insulating film on the surface of a substrate. As recited in independent claim 16, the process comprises cleaning the substrate with plasma using a cleaning gas, oxidizing the substrate with plasma using an oxidizing gas to form an oxide film thereon, nitriding the oxide film with plasma using a nitriding gas and after the nitriding, treating the oxide film with plasma based on a treating gas comprising hydrogen gas.

According to independent claim 25, the process comprises cleaning the substrate with plasma using a cleaning gas, nitriding the substrate with plasma based on a nitriding gas to form a nitride film thereon, oxidizing the nitride film with plasma based on an oxidizing gas, and after the oxidizing, treating the nitride film with plasma based on a treating gas comprising hydrogen gas.

In claim 16, the cleaning and oxidizing are conducted under the same operation principle in the same vessel without exposure of the substrate to air, and in claim 25 the cleaning and nitriding are conducted under the same operation principle in the same vessel without exposure of the substrate to air

None of the cited references teach or suggest the claimed processes, which include an initial cleaning step, an oxidizing (nitriding) step followed by a nitriding (oxidizing) step, and a treating step wherein the underlying oxide (nitride) film is treated with a plasma comprising hydrogen gas. Reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claims 23, 24, 32, 33 and 56-59 under 35 U.S.C. § 103(a) over Ohmi, Wolf I and Mintz in further view of Wolf IV is respectfully traversed. Claims 23, 32, 56 and 58 depend either directly or indirectly from independent claims 16 and 25 and thus are patentable at least for the reasons that claims 16 and 25 are patentable. The rejection as to claims 24, 33 and 56-59 has been rendered moot by the cancellation of these claims.

In a similar vein, the cancellation of claims 52, 53 and 60-60 has rendered moot the rejection of claims 52 and 53 under 35 U.S.C. § 103(a) over Ohmi, Wolf I and Mintz in further view of Ohmi, US 6,357,385 (Ohmi II), and the rejection of

claims 60-63 under 35 U.S.C. § 103(a) over Ohmi, Wolf I, Mintz and Wolf IV in further view of Hallyal, US 6,451,641. Reconsideration and withdrawal of the rejections are respectfully requested.

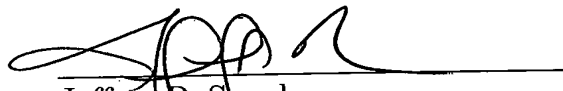
In view of the foregoing, the application is respectfully submitted to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket # 101249.55459US).

Respectfully submitted,

October 31, 2007


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